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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,958

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Kwang-Ho Han

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EXAMINER

KEENAN, JAMES W

ART UNIT

PAPER NUMBER

3652

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/775,958	Applicant(s) HAN ET AL.	
	Examiner James Keenan	Art Unit 3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-13,15-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-13,15-21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-6, 8-11, 18, 21 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 8, it is not clear if the recitation of "a transfer rod coupled to each of the guiding blocks" refers to a single rod which couples to all of the blocks or a plurality of rods, each coupled to one of the blocks. This also applies to claim 18, line 9.

Also in claim 1, last line, it is not clear to which element the term "movement" refers.

In claim 4, it is not clear if the recitation of "a plurality of transfer rods" refers to the same rods of claim 1 or additional rods.

In claim 5, there is no clear antecedent basis for a particular "transfer rod".

In claims 21 and 23, it is not clear to which element the "horizontal", vertical", and "connection" portions belong.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al (previously of record) in view of Wu (US 6,932,558).

Shin et al teach a method of positioning a wafer on a susceptor 24 comprising placing the wafer on lift pins 12 protruding through openings in the susceptor, lowering the pins, and moving guiding blocks 22 to position the substrate at a predetermined aligned position on the susceptor (see col. 5, line 40, to col. 6, line 5).

Shin et al show the guiding to move up and down rather than inwardly and outwardly on the susceptor. However, because of the beveled shape of the portion of the guiding blocks which actually engages the wafer, the effect of moving the guiding blocks up and down is the same as though they were being moved radially (inwardly and outwardly), as described in the above noted passage.

Furthermore, Wu teaches that is well known in the art to utilize a mechanism for radially moving a plurality of wafer engaging rollers 6 (guiding blocks) inwardly and outwardly relative to a table 4 (analogous to Shin's susceptor) for centering and aligning of the wafer.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the process of Shin et al by moving the guiding blocks inwardly and outwardly, as this would merely be an alternate equivalent manner of moving the guiding blocks to center the wafer, the use of which in the apparatus of Shin et al would neither require undue experimentation nor produce unexpected results.

Re claim 13, the guiding blocks clearly move "a predetermined distance", as broadly claimed.

Re claim 15, both Shin et al and Wu teach testing to determine the proper positioning of the wafer.

Re claim 17, since Shin et al's device is used in a heating environment, adjusting the guiding blocks based on temperature would have been a mere design expediency.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al in view of Wu, as applied to claim 15 above, and further in view of Horr et al (previously of record).

Although Shin et al is used in a vacuum environment, there is no explicit teaching of detecting a vacuum level in a vacuum line communicating with a vacuum space.

Horr et al shows a wafer alignment apparatus in a vacuum environment including pump 28, line 27, and sensor 17 (col. , lines 28-33 and 62-66, and col. 4, lines 15-17).

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the process of Shin et al by detecting a vacuum level in a vacuum line communicating with a vacuum space, as taught by Horr et al, to more accurately detect and align the substrate.

6. Claims 1-3, 9, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi (US 2003/0219333) in view Wu.

It is noted that the effective filing date of Takeuchi predates that of applicant's 7/14/03 foreign priority date but not the 2/13/03 foreign priority date. However, applicant cannot rely upon the foreign priority papers to overcome this rejection because a

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translation of said papers has not been made of record in accordance with 37 CFR

1.55. See MPEP § 201.15. It is also noted that the features claimed in at least claims 1 and 18 do not appear to be disclosed until the later 7/14/03 foreign priority application. If this is correct, a translation will not overcome the rejection.

Takeuchi shows a wafer (substrate) support mechanism in a manufacturing environment including sample stage 1 (susceptor), lift pin assembly 17, guiding blocks 13 disposed around an edge of the susceptor for positioning and aligning the substrate on the susceptor, and a guiding block transfer unit for collectively and radially moving the guiding blocks, the transfer unit including a transfer rod 8 coupled to each guiding block.

Takeuchi does not disclose an attachment assembly extending through openings in the guiding blocks and transfer rods.

Wu shows guiding blocks 32 collectively radially moved by a transfer unit comprising transfer rod 38 coupled to each of the guiding blocks by an attachment assembly 46 extending through openings in the guiding block and transfer rod (fig 3).

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Takeuchi by utilizing an attachment assembly for attaching the guiding blocks to the transfer rods, as shown by Bettencourt et al, for improved wafer alignment and gripping during processing.

Re claims 2-3, note guiding lanes 7 of Wu.

Re claim 9, Wu teaches testing, as noted above.

7. Claims 6, 11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Wu, as applied to claims 1 and 18 above, and further in view of Shin et al.

In the same manner noted above with respect to claim 17, further modifying the apparatus of Takeuchi by adjusting the guiding blocks based on temperature would have been obvious for one skilled in the art based on Shin et al's use of a similar wafer aligning system in a heating environment.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi in view of Wu, as applied to claim 9 above, and further in view of Horr et al.

In the same manner noted above with respect to claim 16, further modifying the apparatus of Takeuchi by utilizing a vacuum line, vacuum pump, and sensor would have been obvious for one skilled in the art based on Horr et al's use of a similar wafer aligning system in a vacuum environment.

9. Claims 4, 5, and 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claims 21 and 23 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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11. Applicant's arguments with respect to claims 1-3, 6, 9-11, and 18-20 have been considered but are moot in view of the new ground(s) of rejection.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Keenan whose telephone number is 571-272-6925. The examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax number for the organization where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James Keenan
Primary Examiner
Art Unit 3652



jwk
10/1/07